

Nutritional Value of Dry Beans

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Throughout history, dry beans have been used as a staple of the diet, and the health benefits derived from them have been well recognized. Documentation of their use goes back far into the past, long before biblical times. Evidence of dry bean use in Southeast Asia, the Middle East, Africa, the Americas, India and China is available from archeological evidence.

Most Americans are not eating enough beans, although people in the southern and western regions of the United States consume more than those in the Midwest and Northeast, even though half of the beans grown in the country are from North Dakota and Michigan. Americans consume, on average, about 6.5 pounds of dry beans yearly which is equal to 56 g/week or a little more than one quarter of the 2005 Dietary Guidelines for Americans' recommendation of 3 cups of beans per week (dry weight ~200 g).

Dry beans are nutrient-dense in that the amount of nutrients provided per calorie is particularly high. Increased intake will provide nutritional benefits to the diet, and may help to reduce disease risk and enhance longevity. In a recent multicultural study, the consumption of beans was shown to be the only dietary component related to longevity. In a study called the "Food Habits in Later Life Study," investigators found that for every 20 g intake of legumes (including dry beans), the risk ratio of death was reduced by 6% in the older people (aged 70 and older) studied.

Dry Beans are Nutritionally Rich

Although dry beans vary considerably in flavor, size, color, and shape, their nutritional composition is remarkably similar. (Table 1 provides an example of the nutrient content of cooked dry beans.) They are packed with protein, carbohydrates, vitamins and minerals, and are low in fat. One half cup of cooked dry beans contains approximately 115 calories

and provides 8 grams of protein. In addition to macronutrients, vitamins and minerals, dry beans contain several types of phytochemicals. They are rich in lignans, which may play a role in preventing osteoporosis, heart disease, and certain cancers. The flavonoids in beans may help reduce heart disease and cancer risk. The plant stanol esters, or phytosterols, contained in dry beans may help reduce blood cholesterol levels.

Dry Beans Provide Complex Carbohydrates

Sixty to 65% of the calories in dry beans are from carbohydrates, predominantly in the form of starch, resistant starch, and small amounts of non-starch polysaccharides. Dry beans have a low glycemic index, with values varying from 27–42% relative to glucose and 40–59% relative to white bread. The reduced glycemic index of dry beans helps reduce the glycemic load of the diet when served in a mixed meal. The properties of the carbohydrates found in dry beans,

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Table 1: Nutritional Values of Black Beans, Cooked

Serving Size: 1/2 cup	Thiamin: <1 mg
Calories: 113	Folic Acid: 128 mcg
Fat: <1 g	Copper: <1 mg
Saturated Fat: <1 g	Iron: 2 g
Cholesterol: 0 mg	Magnesium: 60 mg
Carbohydrate: 20 g	Manganese: <1 mg
Protein: 8 g	Phosphorus: 120 mg
Dietary Fiber: 8 g	Potassium: 306 mg
Sodium: 1 mg	



along with their fiber content, make them ideal foods for the management of abnormalities associated with insulin resistance, diabetes and hyperlipidemia.

Beans contain some complex sugars of the raffinose family. These are the sugars that cause digestive issues with bean consumption. These sugars must be broken down by enzymes that are not available in the human digestive system and are therefore available for microbial action in the colon, resulting in gas production and flatulence. These sugars can be removed effectively from the beans by soaking the beans, and then cooking them, discarding the soaking and cooking liquids.

Dry Beans Provide Beneficial Dietary Fiber

Dry beans are rich in both soluble and insoluble fibers, so they provide the nutritional benefits of both fiber classes. The soluble fiber in beans dissolves in water, trapping bile which helps to lower blood levels of LDL cholesterol, especially if LDL cholesterol levels were high to begin with, without compromising the level of protective HDL cholesterol. Dry beans also provide substantial amounts of insoluble fiber, which help attract water to the stool and enhance transit time of waste through the colon. This may help to combat constipation, colon cancer, and other conditions that afflict the digestive tract.

Dry Beans are a Major Source of Dietary Protein

Dry beans are very good source of low fat protein. They contain between 21 to 25% protein by weight, which is much higher than other vegetable products. In many parts of the world, they provide a substantial proportion of the total protein intake for the population. The intake of dried beans as a protein source is extremely important worldwide as they

provide a good source of protein at minimal cost relative to the production of animal protein sources.

Dry Beans are Low in Fat

The fat content of dry beans is very low (less than 2% of total content), and they contain predominately unsaturated fatty acids. There is some variation based on variety and growth conditions, but most beans contain about 85% of their fat as unsaturated fatty acids. Because dry beans are plant foods, they are cholesterol-free.

Dry Beans are Plentiful in Vitamins and Minerals

As for vitamins and minerals, beans are an excellent source of copper, phosphorus, manganese and magnesium—nutrients that many Americans don't get enough of. Most dry beans are a rich source of iron, which makes them ideal for vegans who do not get an animal source of iron. The nutritional content of most dry beans is very similar, with the exception of iron content. White beans have almost twice the iron of black beans, while kidney beans are somewhere in between.

Dry beans are an excellent source of the water-soluble vitamins thiamin and folic acid and a good source of riboflavin and vitamin B6.

Summary

Nutrient dense dry beans are an important addition to the diet. They are low in fat, high in fiber and packed with protein. Dry beans provide a rich source of vitamins and minerals as well as plant phytochemicals. Including 3 cups of cooked dry beans in the diet on a weekly basis will meet the U.S. Dietary Guidelines for Americans. In addition, they will enhance health-promoting aspects of the diet and be important in reducing risk for chronic diseases such as obesity, cancer, diabetes and heart disease. 